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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/815,050	03/31/2004	Brian D. Csermak	764164605067(002)	7956

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EXAMINER	
SWERDLOW, DANIEL	

ART UNIT	PAPER NUMBER
2615	

DATE MAILED: 04/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/815,050	CSERMAK ET AL.	
	Examiner	Art Unit	
	Daniel Swerdlow	2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 March 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) *14-20* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13 and 21-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on *31 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Claims 14 through 20 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse by Mr. Joseph M. Sauer, reg. no. 47,919 by telephone on 25 April 2006.

2. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. To the extent that the claims are not supported by the provisional application 60/461324, filed on 8 April 2003, US Patent 6,879,692 to Nielsen et al. is prior art under 35 U.S.C. 102(b) by virtue of its prior publication as US 2003/0007647 A1 on 9 January 2003. To the extent that the claims are supported by the provisional application US

Patent 6,879,692 to Nielsen et al. is prior art under 35 U.S.C. 102(e) by virtue of its application date of 9 July 2001.

5. **Claims 1, 2, 5 through 7 and 21 through 23 are rejected under 35 U.S.C. 102(b) and/or 35 U.S.C. 102(e) as being anticipated by Nielsen et al. (US Patent 6,879,692).**

6. Regarding Claim 1, Nielsen discloses a hearing aid that corresponds to the hearing instrument claimed (Fig. 1), includes a plurality of transducers (12, 14, 16, 38), and has a self-test capability (column 1, lines 20-22) that corresponds to the self-diagnostics system claimed and comprises: self-test circuitry that corresponds to the detection circuitry claimed (Fig. 1, reference 36, 40, 42, 44, 46, 48, 49) including a probe means (42) that monitors the status of at least one input transducer by determining the signal level of the generated electrical signal (i.e., the output of the transducer) and compares the output to a reference level stored in a memory (i.e., a predetermined threshold level) (column 2, lines 38-48); the self-test circuitry that corresponds to the detection circuitry claimed being operable to send a signal that the hearing aid comprises a defect (i.e., generate an error message output) if the detected value is less than the reference value (i.e., if the measured energy level output of the transducer falls below the predetermined threshold level) (column 2, lines 43-48); and a display device (Fig. 4, reference 52; column 2, lines 48-51) that displays the type of defect signaled and, as such, inherently constitutes a memory device that stores the error message output.

7. Regarding Claim 2, Nielsen further discloses a display device (Fig. 4, reference 52; column 2, lines 48-51) that corresponds to the error indicator claimed and displays the type of defect signaled (i.e., activates an error indicia for communicating a possible

transducer function to a hearing instrument user) (column 5, lines 52-56) when the detected value is less than the reference value (i.e., if the measured energy level output of the transducer falls below the predetermined threshold level) (column 2, lines 43-48).

8. Regarding Claims 5 and 6, Nielsen further discloses the transducer being either of two input microphones (Fig. 1, reference 12, 24; column 5, lines 52-56).

9. Regarding Claim 7, Nielsen further discloses display of the error message on a programming device connected to the hearing aid (column 5, lines 43-44). As such, the connection constitutes a programming port.

10. Regarding Claim 21, Nielsen discloses a hearing aid that corresponds to the hearing instrument claimed (Fig. 1), and comprises: at least one microphone (12, 14); a converter, filter and processor arrangement (20, 22, 26, 28, 32) that corresponds to the sound processor claimed; a hearing aid output transducer (38) that corresponds to the receiver claimed; and self-test circuitry that corresponds to the detection circuitry claimed (Fig. 1, reference 36, 40, 42, 44, 46, 48, 49) including a probe means (42) that monitors the signal (i.e., energy) level at a node and compares the level to a reference level stored in a memory (i.e., a predetermined range of energy levels) (column 2, lines 38-48 to determine whether the hearing aid comprises a defect (i.e., identify a potential hearing instrument malfunction) if the level value is less than the reference value (i.e., if the detected energy level deviates from the predetermined range) (column 2, lines 43-48).

11. Regarding Claim 22, Nielsen further discloses connecting the level detector to the input transducer (i.e., the output node of the hearing instrument microphone) (column 2, lines 38-42).

12. Regarding Claim 23, Nielsen further discloses connecting the level detector to the signal processor output (i.e., the input node of the hearing instrument receiver) (column 5, lines 2-18).

13. **Claims 21 and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Fletcher et al. (US Patent 4,049,930).**

14. Regarding Claim 21, Fletcher discloses a hearing aid (Figs. 1, 2) comprising: a microphone (10); a hearing aid amplifier (12) that corresponds to the sound processor claimed; an ear piece (14) that corresponds to the receiver claimed; and a difference detector (34) that corresponds to the detection circuitry claimed and monitors the voltage output of the hearing aid power source (d) (i.e., an energy level at a node within the hearing instrument) and compares it with a reference level (c) (i.e., a predetermined range of energy levels) to identify a potential malfunction if the voltage output of the hearing aid power source is less that the reference voltage (i.e., the detected level deviates from the predetermined range) (column 5, lines 11-23).

15. Regarding Claim 24, Fletcher further discloses monitored level being the voltage output of the hearing aid power source (d) (i.e., hearing instrument battery) and compares it with a reference level (c) (i.e., a predetermined range of battery voltages) to identify a potential malfunction if the voltage output of the hearing aid power source is less that the reference voltage (i.e., the voltage level of the power source deviates from the predetermined range) (column 5, lines 11-23). Because a short-circuited output transducer inherently caused a greater current draw and a corresponding drop in battery voltage, this identifies a potential transducer malfunction.

Claim Rejections - 35 USC § 103

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

17. **Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nielsen in view of Fletcher.**

18. Regarding Claim 3, as shown above apropos of Claim 2, Nielsen anticipates all elements except the error indicia being a light. Fletcher discloses a hearing aid malfunction detection system that uses a light to signal a hearing aid malfunction (column 7, lines 29-38; column 8, lines 45-47). One skilled in the art would have known that a light would require less power and cost less than a dedicated display device. It would have been obvious to one skilled in the art at the time of the invention to apply the light malfunction indicator taught by Fletcher to the hearing aid taught by Nielsen for the purpose of realizing the aforesaid advantages.

19. Regarding Claim 4, Nielsen further discloses signaling a defect by use of a tone (column 1, line 66-column 2, line 4).

20. **Claims 8, 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nielsen in view of Kates et al. (US Patent 6,792,114).**

21. Regarding Claim 8, Nielsen further discloses test tone generation using the hearing aid output transducer (i.e., hearing instrument loudspeaker) and determination of the resulting signal level in an input transducer (monitoring a microphone to detect the test tone) (column 5, lines 21-33). Therefore Nielsen anticipates all elements of Claim 8

except the test tone being directed into the ear canal and picked up by an inner microphone. Kates discloses a hearing aid performance monitoring system in which an in-ear microphone is used to receive output of the hearing aid receiver (column 5, lines 14-17). Kates further discloses that such an arrangement provides measurement of actual in-use situations. It would have been obvious to one skilled in the art at the time of the invention to apply in-ear monitoring as taught by Kates to the hearing aid taught by Nielsen for the purpose of realizing the aforesaid advantages.

22. Regarding Claim 12, Nielsen further discloses test tone (i.e., audio output signal) generation using the hearing aid output transducer (i.e., loudspeaker) and determination of the resulting signal level in an input transducer (measuring the energy level of a microphone signal) (column 5, lines 21-33). Therefore Nielsen anticipates all elements of Claim 12 except the test tone being directed into the ear canal and picked up by an inner microphone. Kates discloses a hearing aid performance monitoring system in which an in-ear microphone is used to receive output of the hearing aid receiver (column 5, lines 14-17). Kates further discloses that such an arrangement provides measurement of actual in-use situations. It would have been obvious to one skilled in the art at the time of the invention to apply in-ear monitoring as taught by Kates to the hearing aid taught by Nielsen for the purpose of realizing the aforesaid advantages.

23. Regarding Claim 13, Nielsen further discloses determining the hearing aid comprises a defect if the detected value of a transducer output is less than the reference value (i.e., if the difference between the measured energy level output of the transducer and the estimated energy exceeds a predetermined threshold level) (column 2, lines 43-48).

24. To the extent that the claims are not supported by the provisional application 60/461324, filed on 8 April 2003, US Patent 7,013,015 to Hohmann et al. is prior art under 35 U.S.C. 102(b) by virtue of its prior publication as US 2002/0176594 A1 on 28 November 2002. To the extent that the claims are supported by the provisional application US Patent 7,013,015 to Hohmann et al. is prior art under 35 U.S.C. 102(e) by virtue of its application date of 1 March 2002.

25. **Claims 9 through 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nielsen in view of Hohmann et al. (US Patent 7,013,015).**

26. Regarding Claim 9, in addition to the elements cited above apropos of Claim 1, Nielsen further discloses the hearing aid having two microphones (12, 14). However, Nielsen discloses only comparing the output of each microphone individually to a reference value stored in memory (column 2, lines 43-51) and not to one another as claimed. Hohmann discloses a hearing aid (Fig. 2) with two microphones (12, 12') that compares the microphone signals (i.e., measure energy levels of the microphones) (column 4, lines 28-31). Hohman further discloses that such an arrangement permits detection and mitigation of feedback (column 6, lines 30-34). It would have been obvious to one skilled in the art at the time of the invention to apply microphone output comparison as taught by Hohman to the hearing aid taught by Nielsen for the purpose of realizing the aforesaid advantages.

27. Regarding Claim 10, Hohman further discloses detecting a feedback condition (i.e., generating an error message) from comparison of the microphone signals (i.e., if the difference between the energy levels exceeds a threshold) (column 4, lines 28-55).

28. Regarding Claim 11, Hohman further discloses implementing narrow-band filters (i.e., automatically adjusting frequency responses) if comparison of the microphone signals indicates a feedback condition (i.e., if the difference between the energy levels exceeds a threshold) (column 4, lines 28-55).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel Swerdlow whose telephone number is 571-272-7531. The examiner can normally be reached on Monday through Friday between 7:30 AM and 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh H. Tran can be reached on 571-272-7564. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/David Swerdlow/

Daniel Swerdlow
Primary Examiner
Art Unit 2615

ds
26 April 2006